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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,028	01/20/2004	Hisashi Yamamoto	7814/93	3933

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EXAMINER

DENTZ, BERNARD I

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/762,028

Applicant(s)

YAMAMOTO ET AL.

Examiner

Bernard Dentz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 7,10,39 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,9, 11-38 and 41-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Applicants have responded to the final rejection by filing a Notice of Appeal and the Appeal Brief.

On studying the case the Examiner has decided to withdraw the final rejection in order to make a 35 USC 112 rejection.

He has also in studying the Michaelson et al reference noticed that some information using molybdenum bishydroximates  $[O_2Mo(hydroximate)_2]$  was given at p.1990, col.2. There it states that these molybdenum complexes gave poor (<2%) asymmetric inductions.

This teaching shows that the structure of the chiral bishydroxamic acid in the chiral bishydroxamic acid ligand is very important in giving asymmetric inductions.

This is evidence for patentability of the instant catalytic asymmetric epoxidation using applicants' particular class of chiral bishydroxamic acids.

However the recitation in claim 1 of "chiral bishydroxamic acid ligand and a metal" is very broad, reading on all kind of structures only limited by 2 hydroxamic acid groups therein. Of course it also reads on the above compounds taught by Michaelson et al to give poor asymmetric induction in the instant epoxidation reaction.

Claims 1,3,5,6,8,9,28,31,32,34,35 and 46-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Michaelson et al for the reasons given above. See also P. 1991 note(16).

Claims 1,3-6,8,9,27-38 and 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michaelson et al. The instant processes containing the corresponding vanadium bis hydroximates, using alkenes and cycloalkenes not specifically disclosed

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by the reference would have been obvious to one of ordinary skill in the art. Use of chiral bishydroxamic acid ligand and a metal broadly is considered obvious in view of the reference.

It is only the particular class of chiral bishydroxamic acid ligand shown in the structure in claim 2 and claim 41 where good asymmetric induction has been shown.

Claims 1-6, 8,9, 11-38 and 41-50 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the structures of claims 2 and 41, does not reasonably provide enablement for "chiral bishydroxamic acid ligand" broadly. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. "Catalytic asymmetric oxidation" of a "substrate" to produce "a chiral oxidation product" is not enabled. "Substrate" and "chiral oxidation product" are broader than what is enabled by the specification. See p. 2 of the specification at lines 2-4 recites the asymmetric epoxidation of olefins and the asymmetric oxidation of sulfides and phosphines. This is what is enabled.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim\*s 1-6,8,9,11-38 and 41-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 1 must be limited to the elected epoxidation of an alkene or a cyclic alkene. The product must be

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recited as "a chiral epoxide". The instant broad language includes the non-elected subject matter.

Claims 1-6, 9,12-27,29,31-33,37,41 and 48-50 are objected to for misjoinder of invention. Limitation of claim 1 as suggested directly above would remove this objection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Dentz whose telephone number is 571-272-0683. The examiner can normally be reached on Mon-Fri from 8 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang, can be reached on 571 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dentz

3-1-2006



BERNARD DENTZ  
PRIMARY EXAMINER